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DIVISION OF WATER
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FACT SHEET

KENTUCKY POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT TO DISCHARGE TREATED WASTEWATER INTO WATERS OF THE COMMONWEALTH

KPDES No.: KY0091715 **Permit Writer:** Mahmoud Sartipi **Date:** May 7, 2009
AI No.: 805

1. **SYNOPSIS OF APPLICATION**

a. Name and Address of Applicant

Winchester Municipal Utilities
150 North Main Street
Winchester, Kentucky 40391

b. Facility Location

Clark County Landfill
Ironworks Road (HWY 15)
Winchester, Clark County, Kentucky 40391

c. Description of Applicant's Operation

Solid Waste Landfill

d. Production Capacity of Facility

Not applicable.

e. Description of Existing Pollution Abatement Facilities

Outfall 001 – Storm water runoff is treated in sediment basin prior to discharge
Outfall 002 – Storm water runoff and leachate are treated by stabilization and sedimentation.

f. Permitting Action

This is a reissuance of an individual KPDES permit to an existing solid waste landfill facility (SIC 4953).

2. RECEIVING WATERS

a. Receiving Water Name

Outfall 001 – Unnamed tributary of Stoner Creek at Latitude of 37° 58′ 48″ and Longitude of 84° 05′ 35′′
Outfall 002 – Unnamed tributary of Stoner Creek at Latitude of 37° 58′ 48″ and Longitude of 84° 05′ 31′′

b. Stream Segment Use Classifications

Warmwater Aquatic Habitat, Primary and Secondary Contact Recreation, and Domestic Water Supply

c. Stream Segment Antidegradation Categorization

High Quality Water

d. Stream Low Flow Condition

At the point of discharge, the 7Q10 and the Harmonic Mean for unnamed tributary of Stoner Creek are 0.0 cfs and 0.0 cfs, respectively.

At Paris Water Works intake, the nearest downstream public water supply, the 7Q10 and the Harmonic Mean for the Strodes Creek are 0.6 cfs and 9.3 cfs, respectively.

3. REPORTED DISCHARGE AND PROPOSED LIMITS

Description of Discharge - Outfall 001 – Storm water runoff

Effluent Characteristics	Reported Discharge Monthly Average	Reported Discharge Daily Maximum	Proposed Limits Monthly Average	Proposed Limits Daily Maximum	Applicable Water Quality Criteria and/or Effluent Guidelines
Flow (MGD)	0.009	0.086	Report	Report	401 KAR 5:065, Section 2(8)
Chlorides (mg/l)	3.46	6.7	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Sulfate (mg/l)	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Total Organic Carbon	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Sodium (mg/l)	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Specific Conductance (umho/cm)	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Antimony (mg/l)	0.0265	0.05	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Arsenic (mg/l)	0.029	0.05	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Beryllium (mg/l)	0.0039	0.01	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Chromium (mg/l)	0.0077	0.01	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Copper (mg/l)	0.006	0.01	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Lead (mg/l)	0.0258	0.05	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Mercury (mg/l)	0.0002	0.0002	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Nickel (mg/l)	0.0135	0.02	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Thallium (mg/l)	0.0228	0.05	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Zinc (mg/l)	0.0249	0.05	NA	Report	401 KAR 5:065, Section 2(8)
Hardness (AS mg/l of $CaCO_3$)	95	135	NA	Report	401 KAR 5:065, Section 2(8)
Biochemical Oxygen Demand (mg/l)	6.7	77	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Iron (mg/l)	0.98	3.23	NA	Report	401 KAR 5:065, Section 2(8)
Total Recoverable Cadmium (mg/l)	0.0048	0.01	NA	0.002133	401 KAR 10:031, Section 6
Total Recoverable Selenium (mg/l)	0.0356	0.1	NA	0.02	401 KAR 10:031, Section 6
Total Suspended Solids (mg/l)	13	25	NA	100	401 KAR 5:080, Section 1(2)(C)2
pH (standard units)	7.49	8.49	6.0 (min)	9.0 (max)	401 KAR 10:031, Section 4(1)(b)

NA Not Available

4. METHODOLOGY USED IN DETERMINING LIMITATIONS

a. Serial Number

Outfall 001 - Storm water runoffs from covered areas of solid waste landfill

b. Effluent Characteristics

Total Recoverable Cadmium	Total Recoverable Iron	pH
Total Recoverable Selenium	Total Recoverable Arsenic	Flow
Total Recoverable Antimony	Total Recoverable Zinc	Hardness
Total Recoverable Thallium	Total Recoverable Lead	BOD_5
Total Recoverable Beryllium	Total Recoverable Copper	TSS
Total Recoverable Chromium	Total Recoverable Nickel	
Total Recoverable mercury		

c. Pertinent Factors

None

d. Monitoring Requirements

Instantaneous flow measurements shall be collected once per month.

Total Suspended Solids, BOD_5, Iron (TR), Cadmium (TR), Selenium (TR) and pH shall be monitored once per month by grab sample. Antimony (TR), Arsenic (TR), Beryllium (TR), Chromium (TR), Copper (TR), Lead (TR), Nickel (TR), Thallium (TR), Mercury (TR), Zinc (TR) and Hardness shall be monitored once per quarter by grab sample.

e. Justification of Limits

The Kentucky Administrative Regulations (KARs) cited below has been duly promulgated pursuant to the requirements of Chapter 224 of the Kentucky Revised Statutes (KRSs).

Flow, Antimony (TR), Arsenic (TR), Beryllium (TR), Cadmium (TR), Chromium (TR), Copper (TR), Iron (TR), Lead (TR), Nickel (TR), Thallium (TR), Selenium (TR), Zinc (TR), Chlorides, BOD_5 and Hardness
The monitoring requirements for these parameters are consistent with the requirements of 401 KAR 5:065, Section 2(8).

Total Suspended Solids
The limits and requirements for this parameter are consistent with the requirements of 401 KAR 5:080, Section 1(2)(c)2. These limits are representative of the Division of Water's "Best Professional Judgment" (BPJ) determination of the "Best Practicable Control Technology Currently Available" (BPT) and "Best Available Technology Economically Achievable" (BAT) requirements for these types of discharges.

pH, Cadmium (TR) and Selenium (TR)
The limits and requirements for these parameters are consistent with the requirements of 401 KAR 10:031, Section 4 (1)(b) and 401 KAR 10:031, Section 6.

Total Organic Carbon, Sodium, Sulfate, Chlorides and Specific Conductance,
The removal of these parameters from the permit is consistent with 401 KAR 5:080, Section 1(2)(c)2. A review of the DMR data for the previous permit indicated that reasonable potential did not exist for these parameters to be limited or monitored in the permit. Therefore, it is the "Best Professional Judgment" (BPJ) of the Division of Water that these parameters be removed from the permit.

5. REPORTED DISCHARGE AND PROPOSED LIMITS

Description of Discharge - Outfall 002– Storm water runoff and Site produced leachate

Effluent Characteristics	Reported Discharge Monthly Average	Reported Discharge Daily Maximum	Proposed Limits Monthly Average	Proposed Limits Daily Maximum	Applicable Water Quality Criteria and/or Effluent Guidelines
Flow (MGD)	0.02875	0.86	Report	Report	401 KAR 5:065, Section 2(8)
Total Suspended Solids (mg/l)	16	170	27	88	401 KAR 5:065, Section 5(3)
BOD_5 (mg/l)	8.8	196	37	140	401 KAR 5:065, Section 5(3)
Ammonia (as mg/l N)	NA	NA	4.9	10	401 KAR 5:065, Section 5(3)
Alpha-Terpineol (mg/l)	NA	NA	0.016	0.033	401 KAR 5:065, Section 5(3)
Benzoic Acid (mg/l)	NA	NA	0.071	0.12	401 KAR 5:065, Section 5(3)
p-Cresol (mg/l)	NA	NA	0.014	0.025	401 KAR 5:065, Section 5(3)
Phenol (mg/l)	NA	NA	0.015	0.026	401 KAR 5:065, Section 5(3)
Total Zinc (mg/l)	NA	NA	0.11	0.20	401 KAR 5:065, Section 5(3)
Total Recoverable Cadmium (mg/l)	0.0146	0.1	0.000271	0.002133	401 KAR 10:031, Section 6
Total Recoverable Selenium (mg/l)	0.0481	0.1	0.005	0.02	401 KAR 10:031, Section 6
Total Recoverable Iron (mg/l)	0.0481	0.1	1.0	4.0	401 KAR 10:031, Section 6
Chronic Toxicity	NA	NA	NA	1.0 TU_c	401 KAR 10:031, Section 6
Hardness (as mg/l of $CaCO_3$)	113	170	NA	Report	401 KAR 5:065, Section 2(8)
N-Nitrosodiphenylamine (µg/l)	NA	NA	NA	Report	401 KAR 5:065, Section 2(8)
Chlorides (mg/l)	6.2	18	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Sulfate (mg/l)	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Total Organic Carbon	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Sodium (mg/l)	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Specific Conductance (umho/cm)	NA	NA	Removing from permit		401 KAR 5:080, Section 1(2)(c)2
Total Recoverable Lead (mg/l)	0.0255	0.05	Removing from permit		401 KAR 5:080, Section 1(2)(C)2
Total Recoverable Zinc (mg/l)	0.031	0.05	Removing from permit		401 KAR 5:080, Section 1(2)(C)2
Total Recoverable Arsenic (mg/l)	0.03	0.05	Removing from permit		401 KAR 5:080, Section 1(2)(C)2
Total Recoverable Antimony (mg/l)	0.0265	0.05	Removing from permit		401 KAR 5:080, Section 1(2)(C)2
Total Recoverable Beryllium (mg/l)	0.0047	0.01	Removing from permit		401 KAR 5:080, Section 1(2)(C)2
Total Recoverable Nickel (mg/l)	0.0135	0.02	Removing from permit		401 KAR 5:080, Section 1(2)(C)2
Total Recoverable Chromium (mg/l)	0.0085	0.01	Removing from permit		401 KAR 5:080, Section 1(2)(C)2
Total Recoverable Copper (mg/l)	0.0065	0.01	Removing from permit		401 KAR 5:080, Section 1(2)(C)2
Total Recoverable Mercury (mg/l)	0.0002	0.0002	Removing from permit		401 KAR 5:080, Section 1(2)(C)2
Total Recoverable Thallium (mg/l)	0.0265	0.05	Removing from permit		401 KAR 5:080, Section 1(2)(C)2
pH (standard units)	7.52	8.45	6.0 (min)	9.0 (max)	401 KAR 5:065, Section 5(3)

NA Not Available

7. METHODOLOGY USED IN DETERMINING LIMITATIONS

a. Serial Number

Outfall 002 – Storm water runoff and Site produced leachate

b. Effluent Characteristics

Total Recoverable Cadmium	p-Cresol	pH
Total Recoverable Selenium	BOD_5	Flow
Total Recoverable Iron	Total Suspended Solids	Hardness
N-Nitrosodiphenylamine	Ammonia	Total Zinc
Alpha-Terpineol	Chronic Toxicity	Phenol
Benzoic Acid		

d. Pertinent Factors

None

d. Monitoring Requirements

Instantaneous flow measurements shall be collected once per Discharge.

Total Suspended Solids, BOD_5, Ammonia, Alpha-Terpineol, Benzoic Acid, Phenol, P-Cresol, Zinc (Total), Cadmium(TR), Selenium(TR), Iron(TR), Chronic Toxicity and pH shall be monitored once per Month by grab sample. N-Nitrosodiphenylamine and Hardness shall be monitored once per Quarter by grab sample

e. Justification of Limits

The Kentucky Administrative Regulations (KARs) cited below has been duly promulgated pursuant to the requirements of Chapter 224 of the Kentucky Revised Statutes (KRSs).

Flow, N-Nitrosodiphenylamine and Hardness
The monitoring requirements for these parameters are consistent with the requirements of 401 KAR 5:065, Section 2(8).

Total Suspended Solids, BOD_5, Ammonia, Alpha-Terpineol, Benzoic Acid, Phenol, P-Cresol, Zinc, and pH
Limitations for these parameters are consistent with the requirements of 401 KAR 5:065, Section 5(3). These limits are representative of the “Best Practicable Technology Currently Available” (BPT) for an existing landfill point source category, pursuant to 40 CFR Part 445.21.

Chronic Toxicity, Cadmium (TR), Iron (TR), and Selenium (TR)
The limits and requirements for these parameters are consistent with the requirements of 401 KAR 10:031, Section 6.

Total Organic Carbon, Sodium, Sulfate, Specific Conductance, Arsenic (TR), Beryllium (TR), Antimony (TR), Chromium (TR), Nickel (TR), Zinc (TR), Lead (TR), Thallium (TR), Copper (TR), Mercury (TR) and Chlorides
The removal of these parameters from the permit is consistent with 401 KAR 5:080, Section 1(2)(c)2. A review of the DMR data for the previous permit indicated that reasonable potential did not exist for these parameters to be limited or monitored in the permit. Therefore, it is the "Best Professional Judgment" (BPJ) of the Division of Water that these parameters be removed from the permit.

8. **ANTIDEGRADATION**

The conditions of 401 KAR 10:029, Section 1 has been satisfied by this permit action. Since this permit action involves reissuance of an existing permit, and does not propose an expanded discharge, a review under 401 KAR 10:030 Section 1 is not applicable.

9. **PROPOSED COMPLIANCE SCHEDULE FOR ATTAINING EFFLUENT LIMITATIONS**

Permittee shall comply with the effluent limitations by the effective date of the permit.

10. **PROPOSED SPECIAL CONDITIONS WHICH WILL HAVE A SIGNIFICANT IMPACT ON THE DISCHARGE**

Best Management Practices (BMP) Plan
Pursuant to 401 KAR 5:065, Section 2(10), a BMP requirement shall be included: to control or abate the discharge of pollutants from ancillary areas containing toxic or hazardous substances or those substances which could result in an environmental emergency; where numeric effluent limitations are infeasible; or to carry out the purposes and intent of KRS 224. The facility has several areas where support activities occur which have a potential of the discharge of such substances through storm water runoff or spillage. Some of these areas will drain to present wastewater treatment plants, others will not.

Outfall Signage

As a member of ORSANCO (Ohio River Valley Sanitation Commission) the Commonwealth of Kentucky through the Division of Water implements a requirement that the permittee post a permanent marker at each discharge point to the Ohio River. It is the Best Professional Judgment of the Division of Water, 401 KAR 5:080, Section 1(2)(c)2, that all permittees post a marker at all discharge locations and/or monitoring points. The ORSANCO requirements for the marker specify it to be at least 2 feet by 2 feet in size and a minimum of 3 feet above ground level with the Permittee Name and KPDES permit and outfall numbers in 2 inch letters. For internal monitoring points the marker shall be of sufficient size to include the outfall number in 2 inch letters and is to be posted as near as possible to the actual sampling location.

11. **PERMIT DURATION**

Five (5) years. This facility is in the Salt/Licking Basin Management Unit as per the Kentucky Watershed Management Framework.

12. **PERMIT INFORMATION**

The application, draft permit fact sheet, public notice, comments received and additional information is available by writing the Division of Water at 200 Fair Oaks Lane, Frankfort, Kentucky 40601.

13. **REFERENCES AND CITED DOCUMENTS**

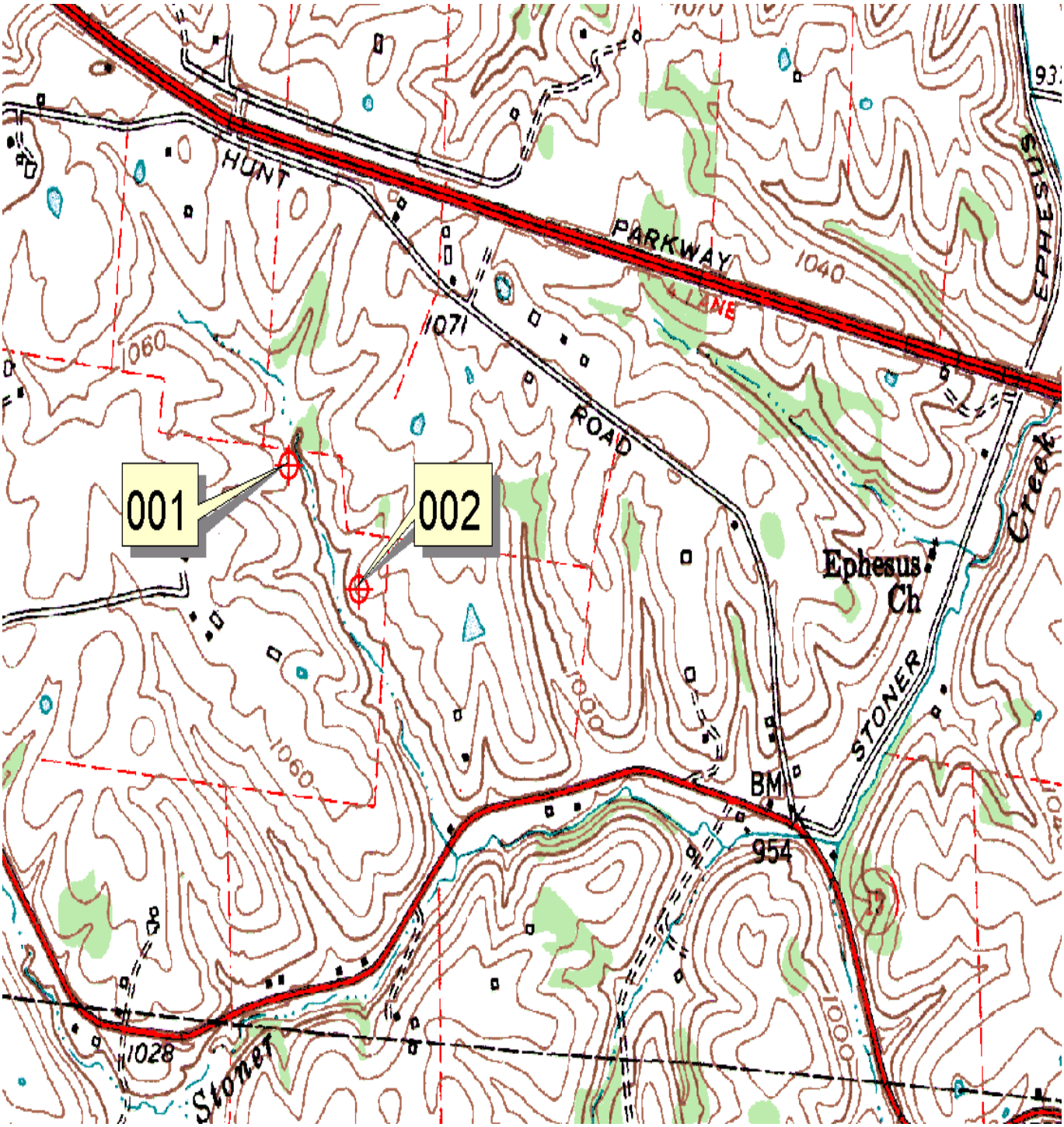
All material and documents referenced or cited in this fact sheet are parts of the permit information as described above and are readily available at the Division of Water Central Office. Information regarding these materials may be obtained from the person listed below.

14. **CONTACT**

For further information contact the individual identified on the Public Notice or the Permit Writer – Mahmoud Sartipi at (502) 564-3410, extension 4954 or e-mail Mahmoud.Sartipi@ky.gov.

15. **PUBLIC NOTICE INFORMATION**

Please refer to the attached Public Notice for details regarding the procedures for a final permit decision, deadline for comments, and other information required by 401 KAR 5:075, Section 4(2)(e).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STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 001

Permit Writer	Mahmoud Sartipi	
Date Entered	3/20/2009	
Facility Name	Clark County Landfill	
KPDES Number	KY0091715	
Outfall Number	001	
Case	Reissuance	
Status:		
Is this an existing facility – Enter "E"		
Is this an existing facility with an increase in pollutant load – Enter "I"		
Is this a new facility – Enter "N"		
Is this a regional facility with an approved up-to-date 201 plan – Enter "R"		
Has the permittee made a successful alternatives analysis/socioeconomic demonstration – Enter "A"	E	
Receiving Water Name	UT to Stoner Creek	
Discharge Mile Point	0.3	
Public Water Supply Name	Paris Water Works	
Intake Water Name	Paris Water Works	
Intake Mile Point	16.59	
Total Effluent Flow (Q_T)	0.009031	MGD
Receiving Water 7Q10 (Q_{RW7Q10})	0	cfs
Receiving Water Harmonic Mean (Q_{RWHM})	0	cfs
Receiving Water pH	7.5	SU
Receiving Water Temperature	20.00	^{o}C
Intake Water 7Q10 (Q_{IW7Q10})	0.6	cfs
Intake Water Harmonic Mean (Q_{IWHM})	9.3	cfs
Effluent Hardness	100	(as mg/l CaCO3)
Receiving Water Hardness	100	(as mg/l CaCO3)
Zone of Initial Dilution (ZID)	1	
Mixing Zone (MZ)	0	
Acute to Chronic Ratio (ACR)	0.1	
Impaired	No	
Permittee agrees to accept no mixing zone for bioaccumulative or persistent pollutants prior to 09/08/2014	0	

STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 001

Calculation Methodology

Definitions

Acute to Chronic Ratio	ACR	Total Effluent Flow	Q_T
Aquatic Life Acute Criteria	C_A	Receiving Water 7Q10	Q_{RW7Q10}
Aquatic Life Chronic Criteria	C_C	Receiving Water Harmonic Mean	Q_{RWHM}
Human Health Criteria - Fish Only	C_{HHFO}	Intake Water 7Q10	Q_{IW7Q10}
Human Health Criteria - Fish & Water	C_{HHFW}	Intake Water Harmonic Mean	Q_{IWHM}
End of Pipe Effluent Limit	C_T	Zone of Initial Dilution	ZID
Instream Background Concentration	C_U	Mixing Zone	MZ
Toxicity Units - Acute	TU_a	Toxicity Units - Chronic	TU_c
Effluent Hardness	H_T	Receiving Water Hardness	H_{RW}

Aquatic Life - Chemical Specific

Acute

NO ZID given $C_T = C_A$

ZID given $C_T = (C_A - C_U) \times (ZID)$

Chronic Mixing Zone / Complete Mix

$$C_T = \{C_C[Q_T + (MZ)(Q_{RW7Q10})] - [C_U(MZ)(Q_{RW7Q10})]\}/Q_T$$

Human Health - Chemical Specific

Fish Only: Mixing Zone / Complete Mix

Carcinogen / Non-Carcinogen

$$C_T = \{C_{HHFO}[Q_T + (MZ)(Q_{RWHM})] - C_U(MZ)(Q_{RWHM})\}/Q_T$$

Fish & Water Only: Mixing Zone / Applicable at point of withdrawal

Carcinogen

$$C_T = \{C_{HHFW}[Q_T + (Q_{IWHM})] - C_U(Q_{IWHM})\}/Q_T$$

Non-Carcinogen

$$C_T = \{C_{HHFW}[Q_T + (Q_{IW7Q10})] - C_U(Q_{IW7Q10})\}/Q_T$$

Aquatic Life - Whole Effluent Toxicity

Acute (Units TU_a)

NO ZID given CT = CA

ZID given $C_T = (C_A - C_U) \times (ZID)$

Chronic Mixing Zone / Complete Mix (Units TUc)

$$C_T = \{C_C[Q_T + (MZ)(Q_{RW7Q10})] - [C_U(MZ)(Q_{RW7Q10})]\}/Q_T$$

Conversion of TU_c to TU_a : $TU_c \times ACR = TU_a$

STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 001

Metal Aquatic Criteria

Pollutant	Acute Criteria	Chronic Criteria
Total Recoverable Cadmium	$e^{(1.0166\ (\ln\ Hardness)\ -\ 3.924)}$	$e^{(0.7409\ (\ln\ Hardness)\ -\ 4.719)}$
Chromium III	$e^{(0.8190\ (\ln\ Hardness)\ +\ 3.7256)}$	$e^{(0.8190\ (\ln\ Hardness)\ +\ 0.6848)}$
Total Recoverable Copper	$e^{(0.9422\ (\ln\ Hardness)\ -\ 1.700)}$	$e^{(0.8545\ (\ln\ Hardness)\ -\ 1.702)}$
Total Recoverable Lead	$e^{(1.273\ (\ln\ Hardness)\ -\ 1.460)}$	$e^{(1.273\ (\ln\ Hardness)\ -\ 4.705)}$
Total Recoverable Nickel	$e^{(0.8460\ (\ln\ Hardness)\ +\ 2.255)}$	$e^{(0.8460(\ln\ Hardness)\ +\ 0.0584)}$
Total Recoverable Silver	$e^{(1.72\ (\ln\ Hardness)\ -\ 6.59)}$	
Total Recoverable Zinc	$e^{(0.8473\ (\ln\ Hardness)\ +\ 0.884)}$	$e^{(0.8473\ (\ln\ Hardness)\ +\ 0.884)}$

Hardness (as mg/l $CaCO_3$)

Zone Initial Dilution (ZID) $H_{RW} + [H_T + H_{RW}]/ZID$

Mixing Zone $[(Q_{RW7Q10})(MZ)(H_{RW}) + (Q_T)(H_T)]/[(QRW7Q10)(MZ)+(QT)]$

Total Ammonia Criteria

Chronic - applies state wide - unionzed criteria of 0.05 mg/l

Acute - applies to the Ohio River (ORSANCO Criteria)

$[0.05*(1+10^{(pka-pH)})]/1.2$ $pka=(0.0902+(2730/(273.1+T))$ T = Temperature ^oC

$[0.411/(1+10^{(7.204-pH)})]+[58.4/(1+10^{(pH-7.204)})]$

Bioaccumulative or Persistent

For new facilities after September 8, 2004 mixing zones shall not be granted for bioaccumulative or persistent pollutants of concern.

Mixing zones for bioaccumulative or persistent pollutants of concerned assigned prior to September 8, 2004 shall expire no later than September 8, 2014, unless the permittee agrees to expiration of the mixing zone prior to that date.

Therefore, the application of the more stringent criteria of Human Health Fish & Water Consumption, Human Health Fish Only Consumption, and Aquatic Life Chronic shall apply as end-of-pipe effluent limitations.

Antidegradation

If a new facility or an existing facility that will have a pollutant load increase, the effluent limits are halved unless the receiving stream is impaired or the permittee has demonstrated a negative socioeconomic or cost benefit analysis.

STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 001

Reasonable Potential Analysis

In establishing water quality based effluent conditions the Division of Water must determine if the pollutant concentrations in the discharge will cause, have the reasonable potential to cause, or contribute to an excursion of any water standard. The process by which the Division of Water makes this determination is known as a Reasonable Potential Analysis.

A Reasonable Potential Analysis is performed by first calculating the expected effluent limitations for those pollutants with water quality criteria. The calculated limits are then compared to the concentrations reported on the KPDES permit application and/or a summarization of the values reported on the Discharge Monitoring Report (DMRs) submitted during the term of the permit. This comparison is made by dividing the reported value by the calculated effluent limitation and converting to a percentage. The following criteria are used in determining how the pollutant will be addressed in the permit.

New Permits or New Pollutants on Permit Renewals

If the reported concentration is less than 70% of the calculated effluent limit then no monitoring or limitations will be required.

If the reported concentration is equal to or greater than 70% but less than 90% of the calculated effluent limit then monitoring will be required.

If the reported concentration is equal to or greater than 90% and the number of analysis reported on the KPDES permit application is less than 12 then monitoring will be required.

If the reported concentration is equal to or greater than 90% and the number of analysis reported on the KPDES permit application is equal or greater than 12 then an effluent limitation will be required.

Permit Renewals - Existing Pollutants

If the reported concentration is less than 70% of the calculated effluent limit then and the source of the reported concentration was the DMRs for that facility and there were more than 12 DMRs utilized to determine the reported concentrations then the pollutant will be removed from the permit.

If the reported concentration is equal to or greater than 70% but less than 90% of the calculated effluent limit then monitoring will be required.

If the reported concentration is equal to or greater than 90% then an effluent limitation will be required.

In all cases, the Division of Water still may exercise its Best Professional Judgment in the implementation of the results.

Parameter	CAS Number	Reported Discharge (mg/l)		Calculated Effluent Limitations (mg/l)		Reasonable Potential		Data Source	No. of Samples	Effluent Requirement		Justification	
		Average	Maximum	Average	Maximum	Average	Maximum			Average	Maximum	Average	Maximum
Chloride	16887006	3.500000	7.000000	600.000000	1,200.000000	0.58%	0.58%	DMR	41	Remove	Remove	Chronic	Acute
Total Residual Chlorine		0.000000	0.000000	0.011000	0.019000	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Color		0.000000	0.000000	3.293913	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Fluoride		0.000000	0.000000	87.837670	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Nitrate-Nitrite (as N)	14797558	0.000000	0.000000	439.188351	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Total Alpha		0.000000	0.000000	NA	15.000000	0.00%	0.00%	No Data	0	None	None	NA	Acute
Total Beta		0.000000	0.000000	NA	50.000000	0.00%	0.00%	No Data	0	None	None	NA	Acute
Total Radium		0.000000	0.000000	NA	5.000000	0.00%	0.00%	No Data	0	None	None	NA	Acute
Sulfate (as SO4)		0.000000	0.000000	10,979.708781	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Surfactants		0.000000	0.000000	21.959418	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Total Recoverable Barium	7440393	0.000000	0.000000	43.918835	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Total Recoverable Iron	7439896	0.970000	3.230000	1.000000	4.000000	97.00%	80.75%	DMR	40	Limit	Monitoring	Chronic	Acute
Total Recoverable Antimony	7440360	0.026500	0.050000	0.245945	NA	10.77%	0.00%	DMR	10	Monitoring	Monitoring	HH DWS	NA
Total Recoverable Arsenic	7440382	0.029000	0.050000	0.150000	0.340000	19.33%	14.71%	DMR	10	Monitoring	Monitoring	Chronic	Acute
Total Recoverable Beryllium	7440417	0.003900	0.010000	0.175675	NA	2.22%	0.00%	DMR	10	Monitoring	Monitoring	HH DWS	NA
Total Recoverable Cadmium	7440439	0.004800	0.010000	0.000271	0.002133	1773.69%	468.78%	DMR	10	Limit	Limit	Chronic	Acute
Total Recoverable Chromium	7440439	0.007700	0.010000	4.391884	NA	0.18%	0.00%	DMR	10	Monitoring	Monitoring	HH DWS	NA
Total Recoverable Copper	7440508	0.006000	0.010000	0.009329	0.013999	64.32%	71.43%	DMR	10	Monitoring	Monitoring	Chronic	Acute
Total Recoverable Lead	7439921	0.026000	0.050000	0.003182	0.081645	817.20%	61.24%	DMR	9	Limit	Monitoring	Chronic	Acute
Total Recoverable Mercury	7439976	0.000200	0.000200	0.000051	0.001700	392.16%	11.76%	DMR	10	Limit	Monitoring	HH Fish	Acute
Total Recoverable Nickel	7440020	0.013500	0.020000	0.052163	0.469174	25.88%	4.26%	DMR	10	Monitoring	Monitoring	Chronic	Acute
Total Recoverable Selenium	7782492	0.035600	0.100000	0.005000	0.020000	712.00%	500.00%	DMR	10	Limit	Limit	Chronic	Acute
Total Recoverable Silver	7440224	0.000000	0.000000	NA	0.003784	0.00%	0.00%	No Data	0	None	None	NA	Acute
Total Recoverable Thallium	7440280	0.022778	0.050000	0.006300	NA	361.56%	0.00%	DMR	9	Limit	Monitoring	HH Fish	NA
Total Recoverable Zinc	7440666	0.024889	0.050000	0.119816	0.119816	20.77%	41.73%	DMR	9	Monitoring	Monitoring	Chronic	Acute
Free Cyanide	57125	0.000000	0.000000	0.005200	0.022000	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
2,3,7,8 Tetrachlorodibenzo P Dioxin	1746016	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Acrolein	107028	0.000000	0.000000	0.290000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Acrylonitrile	107131	0.000000	0.000000	0.000250	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Benzene	71432	0.000000	0.000000	0.051000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Bromoform	75252	0.000000	0.000000	0.140000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Carbon Tetrachloride	56235	0.000000	0.000000	0.001600	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Chlorobenzene	108907	0.000000	0.000000	21.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Chlorodibromomethane	124481	0.000000	0.000000	0.013000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Chloroform	67663	0.000000	0.000000	0.470000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Dichlorobromomethane	75274	0.000000	0.000000	0.017000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2-Dichloroethane	107062	0.000000	0.000000	0.037000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,1-Dichloroethylene	75354	0.000000	0.000000	0.003200	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2-Dichloropropane	78875	0.000000	0.000000	0.015000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,3-Dichloropropene	542756	0.000000	0.000000	0.439188	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Ethylbenzene	100414	0.000000	0.000000	29.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Methyl Bromide	74839	0.000000	0.000000	1.500000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Methylene Chloride	75092	0.000000	0.000000	0.590000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,1,2,2-Tetrachloroethane	79345	0.000000	0.000000	0.004000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Tetrachloroethylene	127184	0.000000	0.000000	0.003300	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Toluene	108883	0.000000	0.000000	200.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2-Trans-Dichloroethylene	156605	0.000000	0.000000	140.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,1,1-Trichloroethane	71556	0.000000	0.000000	8.783767	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
1,1,2-Trichloroethane	79005	0.000000	0.000000	0.016000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Trichloroethylene	79016	0.000000	0.000000	0.030000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA

Parameter	CAS Number	Reported Discharge (mg/l)		Calculated Effluent Limitations (mg/l)		Reasonable Potential		Data Source	No. of Samples	Effluent Requirement		Justification	
		Average	Maximum	Average	Maximum	Average	Maximum			Average	Maximum	Average	Maximum
Vinyl Chloride	75014	0.000000	0.000000	0.530000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2-Chlorophenol	95578	0.000000	0.000000	0.150000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4-Dichlorophenol	120832	0.000000	0.000000	0.290000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4-Dimethylphenol	105679	0.000000	0.000000	0.850000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4-Dinitrophenol	51285	0.000000	0.000000	3.030400	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Pentachlorophenol	87865	0.000000	0.000000	0.003000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Phenol	108952	0.000000	0.000000	922.295538	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
2,4,6-Trichlorophenol	88062	0.000000	0.000000	0.002400	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Acenaphthene	83329	0.000000	0.000000	0.990000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Anthracene	120127	0.000000	0.000000	40.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Benzidine	92875	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Benzo(a)anthracene	56553	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Benzo(a)pyrene	50328	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Benzo(k)fluoranthene	205992	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Bis(2-chloroisopropyl)ether	108601	0.000000	0.000000	61.486369	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Bis(2-ethylhexyl)phthalate	117817	0.000000	0.000000	0.002200	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Butylbenzyl phthalate	85687	0.000000	0.000000	1.900000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2-Chloronaphthalene	91587	0.000000	0.000000	1.600000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Chrysene	218019	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Dibenzo(a,h)anthracene	53703	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2-Dichlorobenzene	95501	0.000000	0.000000	17.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,3-Dichlorobenzene	541731	0.000000	0.000000	0.960000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,4-Dichlorobenzene	106467	0.000000	0.000000	2.600000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
3,3-Dichlorobenzidine	91941	0.000000	0.000000	0.000028	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Diethyl phthalate	84662	0.000000	0.000000	44.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Dimethyl phthalate	131113	0.000000	0.000000	1,100.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Di-n-butyl phthalate	84742	0.000000	0.000000	4.500000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4-Dinitrotoluene	121142	0.000000	0.000000	0.003400	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2-Diphenylhydrazine	122667	0.000000	0.000000	0.000200	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Fluoranthene	206440	0.000000	0.000000	0.140000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Fluorene	86737	0.000000	0.000000	5.300000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Hexachlorobenzene	118741	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Hexachlorobutadiene	87683	0.000000	0.000000	0.018000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Hexachlorocyclopentadiene	77474	0.000000	0.000000	10.540520	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Hexachloroethane	67721	0.000000	0.000000	0.003300	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Ideno(1,2,3-cd)pyrene	193395	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Isophorone	78591	0.000000	0.000000	0.960000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Nitrobenzene	98953	0.000000	0.000000	0.690000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
N-Nitrosodimethylamine	62759	0.000000	0.000000	0.000460	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
N-Nitrosodi-n-Propylamine	621647	0.000000	0.000000	0.000510	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
N-Nitrosodiphenylamine	86306	0.000000	0.000000	0.006000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Pyrene	129000	0.000000	0.000000	4.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2,4-Trichlorobenzene	120821	0.000000	0.000000	0.940000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Aldrin	309002	0.000000	0.000000	0.000000	0.003000	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
alpha-BHC	319846	0.000000	0.000000	0.000005	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Beta-BHC	319857	0.000000	0.000000	0.000017	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
gamma-BHC (Lindane)	58899	0.000000	0.000000	0.000063	0.000950	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
Chlordane	57749	0.000000	0.000000	0.000001	0.002400	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
4,4'-DDT	50293	0.000000	0.000000	0.000000	0.001100	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
4,4'-DDE	72559	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA

Parameter	CAS Number	Reported Discharge (mg/l)		Calculated Effluent Limitations (mg/l)		Reasonable Potential		Data Source	No. of Samples	Effluent Requirement		Justification	
		Average	Maximum	Average	Maximum	Average	Maximum			Average	Maximum	Average	Maximum
4,4'-DDD	72548	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Dieldrin	60571	0.000000	0.000000	0.000000	0.000240	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
Alpha-Endosulfan	959988	0.000000	0.000000	0.000056	0.000220	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Beta-Endosulfan	33213659	0.000000	0.000000	0.000056	0.000220	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Endosulfan sulfate	1031078	0.000000	0.000000	0.089000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Endrin	72208	0.000000	0.000000	0.000036	0.000086	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Endrin aldehyde	7421934	0.000000	0.000000	0.000300	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Heptachlor	76448	0.000000	0.000000	0.000000	0.000520	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
Heptachlor epoxide	1024573	0.000000	0.000000	0.000000	0.000520	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
Polychlorinated Biphenyls (PCBs)		0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Toxaphene	8001352	0.000000	0.000000	0.000000	0.000730	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
1,2,4,5-Tetrachlorobenzene	95943	0.000000	0.000000	0.001100	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2-methyl-4,6-dinitrophenol	534521	0.000000	0.000000	0.280000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4-D	94757	0.000000	0.000000	46.636936	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
2,4,5-TP (Silvex)	93721	0.000000	0.000000	0.439188	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
2,4,5-trichlorophenol	95954	0.000000	0.000000	3.600000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Asbestos	1332214	0.000000	0.000000	4,663,693.610896	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Benzo(b)fluoranthene	205992	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Bis(2-chloroethyl)ether	111444	0.000000	0.000000	0.000530	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Bis(chloromethyl)ether	542881	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Chloropyrifos	2921882	0.000000	0.000000	0.000041	0.000083	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Chromium (III)	16065831	0.000000	0.000000	0.086180	1.803049	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Chromium (VI)	18540299	0.000000	0.000000	0.011000	0.016000	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Demeton	8065483	0.000000	0.000000	0.000100	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Dinitrophenols	25550587	0.000000	0.000000	3.030400	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Guthion	86500	0.000000	0.000000	0.000010	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Hexachlorocyclo-hexane-Technical	319868	0.000000	0.000000	0.000041	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Hydrogen Sulfide, Undissociated	7783064	0.000000	0.000000	0.002000	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Malathion	121755	0.000000	0.000000	0.000100	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Methoxychlor	72435	0.000000	0.000000	0.000030	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Mirex	2385855	0.000000	0.000000	0.000001	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Nitrosamines, Other		0.000000	0.000000	0.000035	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
N-Nitrosodibutylamine	924163	0.000000	0.000000	0.000220	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
N-Nitrosodiethylamine	55185	0.000000	0.000000	0.000533	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
N-Nitrosopyrrolidine	930552	0.000000	0.000000	0.010660	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Parathion	56382	0.000000	0.000000	0.000013	0.000065	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Pentachlorobenzene	608935	0.000000	0.000000	0.001500	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Phthalate esters		0.000000	0.000000	0.003000	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Total Dissolved Solids		0.000000	0.000000	32,939.126343	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Tritium		0.000000	0.000000	NA	20,000.000000	0.00%	0.00%	No Data	0	None	None	NA	Acute
Total Strontium-90		0.000000	0.000000	NA	8.000000	0.00%	0.00%	No Data	0	None	None	NA	Acute
Uranium		0.000000	0.000000	NA	0.030000	0.00%	0.00%	No Data	0	None	None	NA	Acute
Total Ammonia		0.000000	0.000000	3.360911	19.890204	0.00%	0.00%	No Data	0	None	None	Chronic	Acute

Hardness	Chronic	Acute
Metal limitations are developed using the mixed hardness of the effluent and receiving waters	100.00	100.00

Toxicity

Parameter	CAS Number	Reported Discharge (mg/l)		Calculated Effluent Limitations (mg/l)		Reasonable Potential		Data Source	No. of Samples	Effluent Requirement		Justification	
		Average	Maximum	Average	Maximum	Average	Maximum			Average	Maximum	Average	Maximum

Type of Test **Maximum** **Units** **Justification** **Percent Effluent**

Chronic 1.00 TUc Chronic 100.00%

STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 002

Permit Writer	Mahmoud Sartipi	
Date Entered	3/20/2009	
Facility Name	Clark County Landfill	
KPDES Number	KY0091715	
Outfall Number	002	
Case	Reissuance	
Status:		
Is this an existing facility – Enter "E"		
Is this an existing facility with an increase in pollutant load – Enter "I"		
Is this a new facility – Enter "N"		
Is this a regional facility with an approved up-to-date 201 plan – Enter "R"		
Has the permittee made a successful alternatives analysis/socioeconomic demonstration – Enter "A"	E	
Receiving Water Name	UT to Stoner Creek	
Discharge Mile Point	0.3	
Public Water Supply Name	Paris Water Works	
Intake Water Name	Paris Water Works	
Intake Mile Point	16.59	
Total Effluent Flow (Q_T)	0.009031	MGD
Receiving Water 7Q10 (Q_{RW7Q10})	0	cfs
Receiving Water Harmonic Mean (Q_{RWHM})	0	cfs
Receiving Water pH	7.5	SU
Receiving Water Temperature	20.00	^{o}C
Intake Water 7Q10 (Q_{IW7Q10})	0.6	cfs
Intake Water Harmonic Mean (Q_{IWHM})	9.3	cfs
Effluent Hardness	100	(as mg/l CaCO3)
Receiving Water Hardness	100	(as mg/l CaCO3)
Zone of Initial Dilution (ZID)	1	
Mixing Zone (MZ)	0	
Acute to Chronic Ratio (ACR)	0.1	
Impaired	No	
Permittee agrees to accept no mixing zone for bioaccumulative or persistent pollutants prior to 09/08/2014	0	

STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 002

Calculation Methodology

Definitions

Acute to Chronic Ratio	ACR	Total Effluent Flow	Q_T
Aquatic Life Acute Criteria	C_A	Receiving Water 7Q10	Q_{RW7Q10}
Aquatic Life Chronic Criteria	C_C	Receiving Water Harmonic Mean	Q_{RWHM}
Human Health Criteria - Fish Only	C_{HHFO}	Intake Water 7Q10	Q_{IW7Q10}
Human Health Criteria - Fish & Water	C_{HHFW}	Intake Water Harmonic Mean	Q_{IWHM}
End of Pipe Effluent Limit	C_T	Zone of Initial Dilution	ZID
Instream Background Concentration	C_U	Mixing Zone	MZ
Toxicity Units - Acute	TU_a	Toxicity Units - Chronic	TU_c
Effluent Hardness	H_T	Receiving Water Hardness	H_{RW}

Aquatic Life - Chemical Specific

Acute

NO ZID given $C_T = C_A$

ZID given $C_T = (C_A - C_U) \times (ZID)$

Chronic Mixing Zone / Complete Mix

$$C_T = \{C_C[Q_T + (MZ)(Q_{RW7Q10})] - [C_U(MZ)(Q_{RW7Q10})]\}/Q_T$$

Human Health - Chemical Specific

Fish Only: Mixing Zone / Complete Mix

Carcinogen / Non-Carcinogen

$$C_T = \{C_{HHFO}[Q_T + (MZ)(Q_{RWHM})] - C_U(MZ)(Q_{RWHM})\}/Q_T$$

Fish & Water Only: Mixing Zone / Applicable at point of withdrawal

Carcinogen

$$C_T = \{C_{HHFW}[Q_T + (Q_{IWHM})] - C_U(Q_{IWHM})\}/Q_T$$

Non-Carcinogen

$$C_T = \{C_{HHFW}[Q_T + (Q_{IW7Q10})] - C_U(Q_{IW7Q10})\}/Q_T$$

Aquatic Life - Whole Effluent Toxicity

Acute (Units TU_a)

NO ZID given CT = CA

ZID given $C_T = (C_A - C_U) \times (ZID)$

Chronic Mixing Zone / Complete Mix (Units TUc)

$$C_T = \{C_C[Q_T + (MZ)(Q_{RW7Q10})] - [C_U(MZ)(Q_{RW7Q10})]\}/Q_T$$

Conversion of TU_c to TU_a : $TU_c \times ACR = TU_a$

STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 002

Metal Aquatic Criteria

Pollutant	Acute Criteria	Chronic Criteria
Total Recoverable Cadmium	$e^{(1.0166\ (\ln Hardness) - 3.924)}$	$e^{(0.7409\ (\ln Hardness) - 4.719)}$
Chromium III	$e^{(0.8190\ (\ln Hardness) + 3.7256)}$	$e^{(0.8190\ (\ln Hardness) + 0.6848)}$
Total Recoverable Copper	$e^{(0.9422\ (\ln Hardness) - 1.700)}$	$e^{(0.8545\ (\ln Hardness) - 1.702)}$
Total Recoverable Lead	$e^{(1.273\ (\ln Hardness) - 1.460)}$	$e^{(1.273\ (\ln Hardness) - 4.705)}$
Total Recoverable Nickel	$e^{(0.8460\ (\ln Hardness) + 2.255)}$	$e^{(0.8460(\ln Hardness) + 0.0584)}$
Total Recoverable Silver	$e^{(1.72\ (\ln Hardness) - 6.59)}$	
Total Recoverable Zinc	$e^{(0.8473\ (\ln Hardness) + 0.884)}$	$e^{(0.8473\ (\ln Hardness) + 0.884)}$

Hardness (as mg/l $CaCO_3$)

Zone Initial Dilution (ZID) $H_{RW} + [H_T + H_{RW}]/ZID$

Mixing Zone $[(Q_{RW7Q10})(MZ)(H_{RW}) + (Q_T)(H_T)]/[(QRW7Q10)(MZ)+(QT)]$

Total Ammonia Criteria

Chronic - applies state wide - unionzed criteria of 0.05 mg/l

Acute - applies to the Ohio River (ORSANCO Criteria)

$[0.05*(1+10^{(pka-pH)})]/1.2$ $pka=(0.0902+(2730/(273.1+T))$ T = Temperature ^oC

$[0.411/(1+10^{(7.204-pH)})]+[58.4/(1+10^{(pH-7.204)})]$

Bioaccumulative or Persistent

For new facilities after September 8, 2004 mixing zones shall not be granted for bioaccumulative or persistent pollutants of concern.

Mixing zones for bioaccumulative or persistent pollutants of concerned assigned prior to September 8, 2004 shall expire no later than September 8, 2014, unless the permittee agrees to expiration of the mixing zone prior to that date.

Therefore, the application of the more stringent criteria of Human Health Fish & Water Consumption, Human Health Fish Only Consumption, and Aquatic Life Chronic shall apply as end-of-pipe effluent limitations.

Antidegradation

If a new facility or an existing facility that will have a pollutant load increase, the effluent limits are halved unless the receiving stream is impaired or the permittee has demonstrated a negative socioeconomic or cost benefit analysis.

STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 002

Reasonable Potential Analysis

In establishing water quality based effluent conditions the Division of Water must determine if the pollutant concentrations in the discharge will cause, have the reasonable potential to cause, or contribute to an excursion of any water standard. The process by which the Division of Water makes this determination is known as a Reasonable Potential Analysis.

A Reasonable Potential Analysis is performed by first calculating the expected effluent limitations for those pollutants with water quality criteria. The calculated limits are then compared to the concentrations reported on the KPDES permit application and/or a summarization of the values reported on the Discharge Monitoring Report (DMRs) submitted during the term of the permit. This comparison is made by dividing the reported value by the calculated effluent limitation and converting to a percentage. The following criteria are used in determining how the pollutant will be addressed in the permit.

New Permits or New Pollutants on Permit Renewals

If the reported concentration is less than 70% of the calculated effluent limit then no monitoring or limitations will be required.

If the reported concentration is equal to or greater than 70% but less than 90% of the calculated effluent limit then monitoring will be required.

If the reported concentration is equal to or greater than 90% and the number of analysis reported on the KPDES permit application is less than 12 then monitoring will be required.

If the reported concentration is equal to or greater than 90% and the number of analysis reported on the KPDES permit application is equal or greater than 12 then an effluent limitation will be required.

Permit Renewals - Existing Pollutants

If the reported concentration is less than 70% of the calculated effluent limit then and the source of the reported concentration was the DMRs for that facility and there were more than 12 DMRs utilized to determine the reported concentrations then the pollutant will be removed from the permit.

If the reported concentration is equal to or greater than 70% but less than 90% of the calculated effluent limit then monitoring will be required.

If the reported concentration is equal to or greater than 90% then an effluent limitation will be required.

In all cases, the Division of Water still may exercise its Best Professional Judgment in the implementation of the results.

Parameter	CAS Number	Reported Discharge (mg/l)		Calculated Effluent Limitations (mg/l)		Reasonable Potential		Data Source	No. of Samples	Effluent Requirement		Justification	
		Average	Maximum	Average	Maximum	Average	Maximum			Average	Maximum	Average	Maximum
Chloride	16887006	6.000000	18.000000	600.000000	1,200.000000	1.00%	1.50%	DMR	33	Remove	Remove	Chronic	Acute
Total Residual Chlorine		0.000000	0.000000	0.011000	0.019000	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Color		0.000000	0.000000	3.293913	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Fluoride		0.000000	0.000000	87.837670	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Nitrate-Nitrite (as N)	14797558	0.000000	0.000000	439.188351	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Total Alpha		0.000000	0.000000	NA	15.000000	0.00%	0.00%	No Data	0	None	None	NA	Acute
Total Beta		0.000000	0.000000	NA	50.000000	0.00%	0.00%	No Data	0	None	None	NA	Acute
Total Radium		0.000000	0.000000	NA	5.000000	0.00%	0.00%	No Data	0	None	None	NA	Acute
Sulfate (as SO4)		0.000000	0.000000	10,979.708781	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Surfactants		0.000000	0.000000	21.959418	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Total Recoverable Barium	7440393	0.000000	0.000000	43.918835	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Total Recoverable Iron	7439896	1.100000	6.910000	1.000000	4.000000	110.00%	172.75%	DMR	38	Limit	Limit	Chronic	Acute
Total Recoverable Antimony	7440360	0.026500	0.050000	0.245945	NA	10.77%	0.00%	DMR	10	Monitoring	Monitoring	HH DWS	NA
Total Recoverable Arsenic	7440382	0.030000	0.050000	0.150000	0.340000	20.00%	14.71%	DMR	10	Monitoring	Monitoring	Chronic	Acute
Total Recoverable Beryllium	7440417	0.004700	0.010000	0.175675	NA	2.68%	0.00%	DMR	10	Monitoring	Monitoring	HH DWS	NA
Total Recoverable Cadmium	7440439	0.014600	0.100000	0.000271	0.002133	5394.96%	4687.83%	DMR	10	Limit	Limit	Chronic	Acute
Total Recoverable Chromium	7440439	0.008500	0.010000	4.391884	NA	0.19%	0.00%	DMR	10	Monitoring	Monitoring	HH DWS	NA
Total Recoverable Copper	7440508	0.006500	0.010000	0.009329	0.013999	69.68%	71.43%	DMR	10	Monitoring	Monitoring	Chronic	Acute
Total Recoverable Lead	7439921	0.055000	0.050000	0.003182	0.081645	1728.69%	61.24%	DMR	10	Limit	Monitoring	Chronic	Acute
Total Recoverable Mercury	7439976	0.000200	0.000200	0.000051	0.001700	392.16%	11.76%	DMR	10	Limit	Monitoring	HH Fish	Acute
Total Recoverable Nickel	7440020	0.013500	0.020000	0.052163	0.469174	25.88%	4.26%	DMR	10	Monitoring	Monitoring	Chronic	Acute
Total Recoverable Selenium	7782492	0.048100	0.100000	0.005000	0.020000	962.00%	500.00%	DMR	10	Limit	Limit	Chronic	Acute
Total Recoverable Silver	7440224	0.000000	0.000000	NA	0.003784	0.00%	0.00%	No Data	0	None	None	NA	Acute
Total Recoverable Thallium	7440280	0.026500	0.050000	0.006300	NA	420.63%	0.00%	DMR	10	Limit	Monitoring	HH Fish	NA
Total Recoverable Zinc	7440666	0.031000	0.050000	0.119816	0.119816	25.87%	41.73%	DMR	10	Monitoring	Monitoring	Chronic	Acute
Free Cyanide	57125	0.000000	0.000000	0.005200	0.022000	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
2,3,7,8 Tetrachlorodibenzo P Dioxin	1746016	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Acrolein	107028	0.000000	0.000000	0.290000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Acrylonitrile	107131	0.000000	0.000000	0.000250	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Benzene	71432	0.000600	0.000829	0.051000	NA	1.18%	0.00%	Application	2	None	None	HH Fish	NA
Bromoform	75252	0.000000	0.000000	0.140000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Carbon Tetrachloride	56235	0.000000	0.000000	0.001600	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Chlorobenzene	108907	0.002500	0.003450	21.000000	NA	0.01%	0.00%	Application	2	None	None	HH Fish	NA
Chlorodibromomethane	124481	0.000000	0.000000	0.013000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Chloroform	67663	0.000000	0.000000	0.470000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Dichlorobromomethane	75274	0.000000	0.000000	0.017000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2-Dichloroethane	107062	0.000000	0.000000	0.037000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,1-Dichloroethylene	75354	0.000000	0.000000	0.003200	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2-Dichloropropane	78875	0.000000	0.000000	0.015000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,3-Dichloropropene	542756	0.000000	0.000000	0.439188	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Ethylbenzene	100414	0.000000	0.000000	29.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Methyl Bromide	74839	0.000000	0.000000	1.500000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Methylene Chloride	75092	0.000000	0.000000	0.590000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,1,2,2-Tetrachloroethane	79345	0.000000	0.000000	0.004000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Tetrachloroethylene	127184	0.000000	0.000000	0.003300	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Toluene	108883	0.000000	0.000000	200.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2-Trans-Dichloroethylene	156605	0.000000	0.000000	140.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,1,1-Trichloroethane	71556	0.000000	0.000000	8.783767	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
1,1,2-Trichloroethane	79005	0.000000	0.000000	0.016000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Trichloroethylene	79016	0.000000	0.000000	0.030000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA

Parameter	CAS Number	Reported Discharge (mg/l)		Calculated Effluent Limitations (mg/l)		Reasonable Potential		Data Source	No. of Samples	Effluent Requirement		Justification	
		Average	Maximum	Average	Maximum	Average	Maximum			Average	Maximum	Average	Maximum
Vinyl Chloride	75014	0.000000	0.000000	0.530000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2-Chlorophenol	95578	0.000000	0.000000	0.150000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4-Dichlorophenol	120832	0.000000	0.000000	0.290000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4-Dimethylphenol	105679	0.000000	0.000000	0.850000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4-Dinitrophenol	51285	0.000000	0.000000	3.030400	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Pentachlorophenol	87865	0.000000	0.000000	0.003000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Phenol	108952	0.000000	0.000000	922.295538	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
2,4,6-Trichlorophenol	88062	0.000000	0.000000	0.002400	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Acenaphthene	83329	0.000000	0.000000	0.990000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Anthracene	120127	0.000000	0.000000	40.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Benzidine	92875	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Benzo(a)anthracene	56553	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Benzo(a)pyrene	50328	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Benzo(k)fluoranthene	205992	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Bis(2-chloroisopropyl)ether	108601	0.000000	0.000000	61.486369	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Bis(2-ethylhexyl)phthalate	117817	0.000000	0.000000	0.002200	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Butylbenzyl phthalate	85687	0.000000	0.000000	1.900000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2-Chloronaphthalene	91587	0.000000	0.000000	1.600000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Chrysene	218019	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Dibenzo(a,h)anthracene	53703	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2-Dichlorobenzene	95501	0.000000	0.000000	17.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,3-Dichlorobenzene	541731	0.000000	0.000000	0.960000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,4-Dichlorobenzene	106467	0.001400	0.002210	2.600000	NA	0.05%	0.00%	Application	2	None	None	HH Fish	NA
3,3-Dichlorobenzidine	91941	0.000000	0.000000	0.000028	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Diethyl phthalate	84662	0.000000	0.000000	44.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Dimethyl phthalate	131113	0.000000	0.000000	1,100.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Di-n-butyl phthalate	84742	0.000000	0.000000	4.500000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4-Dinitrotoluene	121142	0.000000	0.000000	0.003400	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2-Diphenylhydrazine	122667	0.000000	0.000000	0.000200	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Fluoranthene	206440	0.000000	0.000000	0.140000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Fluorene	86737	0.000000	0.000000	5.300000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Hexachlorobenzene	118741	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Hexachlorobutadiene	87683	0.000000	0.000000	0.018000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Hexachlorocyclopentadiene	77474	0.000000	0.000000	10.540520	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Hexachloroethane	67721	0.000000	0.000000	0.003300	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Ideno(1,2,3-cd)pyrene	193395	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Isophorone	78591	0.000000	0.000000	0.960000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Nitrobenzene	98953	0.000000	0.000000	0.690000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
N-Nitrosodimethylamine	62759	0.000000	0.000000	0.000460	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
N-Nitrosodi-n-Propylamine	621647	0.000000	0.000000	0.000510	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
N-Nitrosodiphenylamine	86306	0.011000	0.013500	0.006000	NA	183.33%	0.00%	Application	2	Monitoring	None	HH Fish	NA
Pyrene	129000	0.000000	0.000000	4.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2,4-Trichlorobenzene	120821	0.000000	0.000000	0.940000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Aldrin	309002	0.000000	0.000000	0.000000	0.003000	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
alpha-BHC	319846	0.000000	0.000000	0.000005	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Beta-BHC	319857	0.000000	0.000000	0.000017	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
gamma-BHC (Lindane)	58899	0.000000	0.000000	0.000063	0.000950	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
Chlordane	57749	0.000000	0.000000	0.000001	0.002400	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
4,4'-DDT	50293	0.000000	0.000000	0.000000	0.001100	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
4,4'-DDE	72559	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA

Parameter	CAS Number	Reported Discharge (mg/l)		Calculated Effluent Limitations (mg/l)		Reasonable Potential		Data Source	No. of Samples	Effluent Requirement		Justification	
		Average	Maximum	Average	Maximum	Average	Maximum			Average	Maximum	Average	Maximum
4,4'-DDD	72548	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Dieldrin	60571	0.000000	0.000000	0.000000	0.000240	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
Alpha-Endosulfan	959988	0.000000	0.000000	0.000056	0.000220	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Beta-Endosulfan	33213659	0.000000	0.000000	0.000056	0.000220	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Endosulfan sulfate	1031078	0.000000	0.000000	0.089000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Endrin	72208	0.000000	0.000000	0.000036	0.000086	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Endrin aldehyde	7421934	0.000000	0.000000	0.000300	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Heptachlor	76448	0.000000	0.000000	0.000000	0.000520	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
Heptachlor epoxide	1024573	0.000000	0.000000	0.000000	0.000520	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
Polychlorinated Biphenyls (PCBs)		0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Toxaphene	8001352	0.000000	0.000000	0.000000	0.000730	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
1,2,4,5-Tetrachlorobenzene	95943	0.000000	0.000000	0.001100	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2-methyl-4,6-dinitrophenol	534521	0.000000	0.000000	0.280000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4-D	94757	0.000000	0.000000	46.636936	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
2,4,5-TP (Silvex)	93721	0.000000	0.000000	0.439188	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
2,4,5-trichlorophenol	95954	0.000000	0.000000	3.600000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Asbestos	1332214	0.000000	0.000000	4,663,693.610896	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Benzo(b)fluoranthene	205992	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Bis(2-chloroethyl)ether	111444	0.000000	0.000000	0.000530	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Bis(chloromethyl)ether	542881	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Chloropyrifos	2921882	0.000000	0.000000	0.000041	0.000083	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Chromium (III)	16065831	0.000000	0.000000	0.086180	1.803049	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Chromium (VI)	18540299	0.000000	0.000000	0.011000	0.016000	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Demeton	8065483	0.000000	0.000000	0.000100	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Dinitrophenols	25550587	0.000000	0.000000	3.030400	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Guthion	86500	0.000000	0.000000	0.000010	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Hexachlorocyclo-hexane-Technical	319868	0.000000	0.000000	0.000041	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Hydrogen Sulfide, Undissociated	7783064	0.000000	0.000000	0.002000	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Malathion	121755	0.000000	0.000000	0.000100	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Methoxychlor	72435	0.000000	0.000000	0.000030	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Mirex	2385855	0.000000	0.000000	0.000001	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Nitrosamines, Other		0.000000	0.000000	0.000035	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
N-Nitrosodibutylamine	924163	0.000000	0.000000	0.000220	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
N-Nitrosodiethylamine	55185	0.000000	0.000000	0.000533	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
N-Nitrosopyrrolidine	930552	0.000000	0.000000	0.010660	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Parathion	56382	0.000000	0.000000	0.000013	0.000065	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Pentachlorobenzene	608935	0.000000	0.000000	0.001500	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Phthalate esters		0.000000	0.000000	0.003000	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Total Dissolved Solids		0.000000	0.000000	32,939.126343	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Tritium		0.000000	0.000000	NA	20,000.000000	0.00%	0.00%	No Data	0	None	None	NA	Acute
Total Strontium-90		0.000000	0.000000	NA	8.000000	0.00%	0.00%	No Data	0	None	None	NA	Acute
Uranium		0.000000	0.000000	NA	0.030000	0.00%	0.00%	No Data	0	None	None	NA	Acute
Total Ammonia		0.000000	0.000000	3.360911	19.890204	0.00%	0.00%	No Data	0	None	None	Chronic	Acute

Hardness	Chronic	Acute
Metal limitations are developed using the mixed hardness of the effluent and receiving waters	100.00	100.00

Toxicity

Parameter	CAS Number	Reported Discharge (mg/l)		Calculated Effluent Limitations (mg/l)		Reasonable Potential		Data Source	No. of Samples	Effluent Requirement		Justification	
		Average	Maximum	Average	Maximum	Average	Maximum			Average	Maximum	Average	Maximum

Type of Test	Maximum	Units	Justification	Percent Effluent
Chronic	1.00	TUc	Chronic	100.00%

KPDES

KENTUCKY POLLUTANT DISCHARGE ELIMINATION SYSTEM

PERMIT

PERMIT NO.: KY0091715
AI NO.: 805

AUTHORIZATION TO DISCHARGE UNDER THE KENTUCKY POLLUTANT DISCHARGE ELIMINATION SYSTEM

Pursuant to Authority in KRS 224,

Winchester Municipal Utilities
150 North Main Street
Winchester, Kentucky 40391

is authorized to discharge from a facility located at

Clark County Landfill
Ironworks Road (HWY 15)
Winchester, Clark County, Kentucky 40391

to receiving waters named

Outfall 001 – Unnamed tributary of Stoner Creek at Latitude 37° 58′ 48″ and Longitude 84° 05′ 35′′
Outfall 002 – Unnamed tributary of Stoner Creek at Latitude 37° 58′ 48″ and Longitude 84° 05′ 31′′

in accordance with effluent limitations, monitoring requirements, and other conditions set forth in PARTS I, II, III, and IV hereof. The permit consists of this cover sheet, and PART I 3 pages, PART II 1 pages, PART III 1 page, PART IV 3 pages, and PART V 3 pages.

This permit shall become effective on

This permit and the authorization to discharge shall expire at midnight,

Date Signed

Sandra L. Gruzesky, Director
Division of Water

A1. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through the term of this permit, the permittee is authorized to discharge from Outfall serial number: 001 – Storm water runoffs from covered areas of solid waste landfill.

Such discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS (lbs/day)		DISCHARGE LIMITATIONS Other Units(Specify)		MONITORING REQUIREMENTS	
	Monthly Avg.	Daily Max.	Monthly Avg.	Daily Max.	Measurement Frequency	Sample Type
Flow (MGD)	Report	Report	N/A	N/A	1/Month	Instantaneous
Total Suspended Solids	N/A	N/A	N/A	100 mg/l	1/Month	Grab
BOD_5 (mg/l)	N/A	N/A	N/A	Report	1/Month	Grab
Total Recoverable Iron (mg/l)	N/A	N/A	N/A	Report	1/Month	Grab
Total Recoverable Selenium (µg/l)	N/A	N/A	N/A	20 2/	1/Month	Grab
Total Recoverable Cadmium (µg/l)	N/A	N/A	N/A	2.133 2/	1/Month	Grab
Total Recoverable Arsenic (µg/l)	N/A	N/A	N/A	Report 2/	1/Quarter	Grab
Total Recoverable Antimony (µg/l)	N/A	N/A	N/A	Report 2/	1/Quarter	Grab
Total Recoverable Beryllium (µg/l)	N/A	N/A	N/A	Report 2/	1/Quarter	Grab
Total Recoverable Chromium (µg/l)	N/A	N/A	N/A	Report 2/	1/Quarter	Grab
Total Recoverable Copper (µg/l)	N/A	N/A	N/A	Report 2/	1/Quarter	Grab
Total Recoverable Lead (µg/l)	N/A	N/A	N/A	Report 2/	1/Quarter	Grab
Total Recoverable Nickel (µg/l)	N/A	N/A	N/A	Report 2/	1/Quarter	Grab
Total Recoverable Thallium (µg/l)	N/A	N/A	N/A	Report 2/	1/Quarter	Grab
Total Recoverable Zinc (µg/l)	N/A	N/A	N/A	Report 2/	1/Quarter	Grab
Hardness (as mg/l $CaCo_3$)	N/A	N/A	N/A	Report 2/	1/Quarter	Grab

- The pH of the effluent shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored 1/Month by grab sample.
- There shall be no discharge of floating solids, visible foam, or sheen in other than trace amounts.
- Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: nearest accessible point prior to discharge to or mixing with the receiving waters.
- The abbreviation N/A means Not Applicable.

2/ The laboratory sheets reporting the results of each parameter shall be submitted with the Discharge Monitoring Reports (DMRs).

THIS PERMIT DOES NOT AUTHORIZE THE DISCHARGE OF LEACHATE FROM OUTFALL 001.

A2. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through the term of this permit, the permittee is authorized to discharge from Outfall serial number: 002 – Storm water runoff and site produced leachate.

Such discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS (lbs/day)		DISCHARGE LIMITATIONS Other Units(Specify)		MONITORING REQUIREMENTS	
	Monthly Avg.	Daily Max.	Monthly Avg.	Daily Max.	Measurement Frequency	Sample Type
Flow (MGD)	Report	Report	N/A	N/A	1/Month	Instantaneous
Total Suspended Solids	N/A	N/A	27 mg/l	88 mg/l	1/Month	Grab
BOD_5	N/A	N/A	37 mg/l	140 mg/l	1/Month	Grab
Alpha-Terpineol	N/A	N/A	0.016 mg/l	0.033 mg/l	1/Month	Grab
Ammonia (as N)	N/A	N/A	4.9 mg/l	10 mg/l	1/Month	Grab
Benzoic acid	N/A	N/A	0.071 mg/l	0.12 mg/l	1/Month	Grab
P-Cresol	N/A	N/A	0.014 mg/l	0.025 mg/l	1/Month	Grab
Phenol	N/A	N/A	0.015 mg/l	0.026 mg/l	1/Month	Grab
Total Zinc	N/A	N/A	0.11 mg/l	0.20 mg/l	1/Month	Grab
Chronic Toxicity	N/A	N/A	N/A	1.0 TU_C	1/Month	Grab
Total Recoverable Iron	N/A	N/A	1.0 mg/l	4.0 mg/l	1/Month	Grab
Total Recoverable Cadmium (µg/l)	N/A	N/A	0.271	2.133 2/	1/Month	Grab
Total Recoverable Selenium (µg/l)	N/A	N/A	5	20 2/	1/Month	Grab
Hardness (as mg/l $CaCo_3$)	N/A	N/A	N/A	Report	1/Quarter	Grab
N-Nitrosodiphenylamine (µg/l)	N/A	N/A	N/A	Report	1/Quarter	Grab

- The pH of the effluent shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored 1/Discharge by grab sample.
- There shall be no discharge of floating solids, visible foam, or sheen in other than trace amounts.
- Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: nearest accessible point prior to discharge to or mixing with the receiving waters.
- The abbreviation N/A means Not Applicable.

2/ The laboratory sheets reporting the results of each parameter shall be submitted with the Discharge Monitoring Reports (DMRs).

B. SCHEDULE OF COMPLIANCE

The permittee shall achieve compliance with all requirements on the effective date of this permit.

STANDARD CONDITIONS FOR KPDES PERMIT

This permit has been issued under the provisions of KRS Chapter 224 and regulations promulgated pursuant thereto. Issuance of this permit does not relieve the permittee from the responsibility of obtaining any other permits or licenses required by this Cabinet and other state, federal, and local agencies.

It is the responsibility of the permittee to demonstrate compliance with permit parameter limitations by utilization of sufficiently sensitive analytical methods.

The permittee is also advised that all KPDES permit conditions in KPDES Regulation 401 KAR 5:065, Section 1 will apply to all discharges authorized by this permit.

PART III

OTHER REQUIREMENTS

A. Reporting of Monitoring Results

Monitoring results obtained during each month must be reported on a preprinted Discharge Monitoring Report (DMR) Form which will be mailed to you. Each month's completed DMR must be sent to the Division of Water at the address listed below (with a copy to the appropriate Regional Office) postmarked no later than the 28th day of the month following the month for which monitoring results were obtained.

Division of Water
Frankfort Regional Office
643 Teton Trail, Suite B
Frankfort, Kentucky 40601
ATTN: Supervisor

Division of Water
Surface Water Permits Branch
Permit Support Section
200 Fair Oaks Lane
Frankfort, Kentucky 40601

B. Reopener Clause

This permit shall be modified, or alternatively revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under 401 KAR 5:050 through 5:086, if the effluent standard or limitation so issued or approved:

1. Contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or

2. Controls any pollutant not limited in the permit.

The permit as modified or reissued under this paragraph shall also contain any other requirements of KRS Chapter 224 when applicable.

C. Outfall Signage

The permittee shall post a permanent marker at all discharge locations and/or monitoring points. The marker shall be at least 2 feet by 2 feet in size and a minimum of 3 feet above ground level with the Permittee Name and KPDES permit and outfall numbers in 2 inch letters. For internal monitoring points the marker shall be of sufficient size to include the outfall number in 2 inch letters and shall be posted as near as possible to the actual sampling location.

D. Required Detected Limits for Selected Pollutants

The following MDLs are required to demonstrate compliance of the listed pollutant with water quality based limitations.

Pollutant	MDL (µg/l)	Pollutant	MDL(µg/l)
Total Recoverable Beryllium	1.0	Total Recoverable Selenium	1.0
Total Recoverable Antimony	10.0	Total Recoverable Arsenic	1.0
Total Recoverable Thallium	1.0	Total Recoverable Lead	1.0
Total Recoverable Nickel	10.0	Total Recoverable Copper	1.0
Total Recoverable Cadmium	0.1	Total Recoverable Chromium	10.0
Total Recoverable Zinc	10.0	Total Recoverable Mercury	0.2

PART IV

BEST MANAGEMENT PRACTICES

SECTION A. GENERAL CONDITIONS

1. Applicability

These conditions apply to all permittees who use, manufacture, store, handle, or discharge any pollutant listed as: (1) toxic under Section 307(a)(1) of the Clean Water Act; (2) oil, as defined in Section 311(a)(1) of the Act; (3) any pollutant listed as hazardous under Section 311 of the Act; or (4) is defined as a pollutant pursuant to KRS 224.01-010(35) and who have ancillary manufacturing operations which could result in (1) the release of a hazardous substance, pollutant, or contaminant, or (2) an environmental emergency, as defined in KRS 224.01-400, as amended, or any regulation promulgated pursuant thereto (hereinafter, the "BMP pollutants"). These operations include material storage areas; plant site runoff; in-plant transfer, process and material handling areas; loading and unloading operations, and sludge and waste disposal areas.

2. BMP Plan

The permittee shall develop and implement a Best Management Practices (BMP) plan consistent with 401 KAR 5:065, Section 2(10) pursuant to KRS 224.70-110, which prevents or minimizes the potential for the release of "BMP pollutants" from ancillary activities through plant site runoff; spillage or leaks, sludge or waste disposal; or drainage from raw material storage. A Best Management Practices (BMP) plan will be prepared by the permittee unless the permittee can demonstrate through the submission of a BMP outline that the elements and intent of the BMP have been fulfilled through the use of existing plans such as the Spill Prevention Control and Countermeasure (SPCC) plans, contingency plans, and other applicable documents.

3. Implementation

If this is the first time for the BMP requirement, then the plan shall be developed and submitted to the Division of Water within 90 days of the effective date of the permit. Implementation shall be within 180 days of that submission. For permit renewals the plan in effect at the time of permit reissuance shall remain in effect. Modifications to the plan as a result of ineffectiveness or plan changes to the facility shall be submitted to the Division of Water and implemented as soon as possible.

4. General Requirements

The BMP plan shall:

a. Be documented in narrative form, and shall include any necessary plot plans, drawings, or maps.

b. Establish specific objectives for the control of toxic and hazardous pollutants.

(1) Each facility component or system shall be examined for its potential for causing a release of "BMP pollutants" due to equipment failure, improper operation, natural phenomena such as rain or snowfall, etc.

(2) Where experience indicates a reasonable potential for equipment failure (e.g., a tank overflow or leakage), natural condition (e.g., precipitation), or other circumstances which could result in a release of "BMP pollutants," the plan should include a prediction of the direction, rate of flow, and total quantity of the pollutants which could be released from the facility as result of each condition or circumstance.

c. Establish specific Best Management Practices to meet the objectives identified under paragraph b of this section, addressing each component or system capable of causing a release of "BMP pollutants."
d. Include any special conditions established in part b of this section.
e. Be reviewed by plant engineering staff and the plant manager.

5. Specific Requirements

The plan shall be consistent with the general guidance contained in the publication entitled "NPDES Best Management Practices Guidance Document," and shall include the following baseline BMPs as a minimum.

a. BMP Committee
b. Reporting of BMP Incidents
c. Risk Identification and Assessment
d. Employee Training
e. Inspections and Records
f. Preventive Maintenance
g. Good Housekeeping
h. Materials Compatibility
i. Security
j. Materials Inventory

6. SPCC Plans

The BMP plan may reflect requirements for Spill Prevention Control and Countermeasure (SPCC) plans under Section 311 of the Act and 40 CFR Part 151, and may incorporate any part of such plans into the BMP plan by reference.

7. Hazardous Waste Management

The permittee shall assure the proper management of solid and hazardous waste in accordance with the regulations promulgated under the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1978 (RCRA) (40 U.S.C. 6901 et seq.) Management practices required under RCRA regulations shall be referenced in the BMP plan.

8. Documentation

The permittee shall maintain a description of the BMP plan at the facility and shall make the plan available to representatives of the Division of Water upon request. Copies of modified BMP Plans shall be submitted within thirty (30) days of completion to the following:

Division of Water
Frankfort Regional Office
643 Teton Trail, Suite B
Frankfort, Kentucky 40601
ATTN: Supervisor

Division of Water
Surface Water Permits Branch
Permit Support Section
200 Fair Oaks Lane
Frankfort, Kentucky 40601

9. BMP Plan Modification

The permittee shall amend the BMP plan whenever there is a change in the facility or change in the operation of the facility which materially increases the potential for the ancillary activities to result in the release of "BMP pollutants."

10. Modification for Ineffectiveness

If the BMP plan proves to be ineffective in achieving the general objective of preventing the release of "BMP pollutants," then the specific objectives and requirements under paragraphs b and c of Section 4, the permit, and/or the BMP plan shall be subject to modification to incorporate revised BMP requirements. If at any time following the issuance of this permit the BMP plan is found to be inadequate pursuant to a state or federal site inspection or plan review, the plan shall be modified to incorporate such changes necessary to resolve the concerns.

SECTION B. SPECIFIC CONDITIONS

N/A

PART V – BIOMONITORING - CHRONIC CONCERNS

In accordance with PART I of this permit, the permittee shall initiate, within 30 days of the effective date of this permit, or continue the series of tests described below to evaluate wastewater toxicity of the discharge from Outfall .

TEST REQUIREMENTS

The permittee shall perform one short-term static-renewal fathead minnow (Pimephales promelas) growth test and one short-term static-renewal water flea (Ceriodaphnia dubia) life-cycle test. Tests shall be performed on a series of 24 hour composite samples collected as described in 1.B. below. In addition to use of a control, effluent concentrations for the tests must include the permitted limit, (i.e., **(percent)**% effluent) and at least four additional effluent concentrations. For a permit limit of 100% effluent, test concentrations shall be 20%, 40%, 60%, 80% and 100%. If the permit limit is less than 100% effluent and greater than or equal to 75% effluent, the test concentrations shall include the permitted limit, two concentrations below the limit that are based on a 0.5 dilution factor, and two concentrations above the limit (to include 100% and mid-point between the permit limit and 100%). If the permit limit is less than 75% effluent, test concentrations shall include the permit limit concentration, two concentrations below the limit based on a 0.5 dilution factor, and two concentrations above the limit based on a 0.5 dilution factor if possible, otherwise to include 100% and mid-point between the permit limit and 100% . Selection of different effluent concentrations must be approved by the Division prior to testing. Testing of the effluent shall be initiated within 36 hours of completing each 24 hour composite sample. Controls shall be tested concurrently with effluent testing using synthetic water. The analysis will be deemed reasonable and good only if the minimum control requirements are met, (i.e. For the Ceriodaphnia test: at least 80% survival of all control organisms and an average of 15 or more young per surviving female in the control solutions; and 60% of surviving control females must produce three broods. For the fathead minnow test: at least 80% survival in controls and the average dry weight per surviving organism in control chambers equals or exceeds 0.25 mg. Any test that does not meet the control acceptability criteria shall be repeated as soon as practicable within the monitoring period (i.e. monthly or quarterly). Noncompliance with the toxicity limit will be demonstrated if the IC_{25} (inhibition concentration) for reproduction or growth is less than **100**% effluent

Tests shall be conducted on both species at the frequency specified in PART I of this permit.

A minimum of three 24 hour composite samples shall be collected at a frequency of one 24 hour composite every other day. For example, the first sample would be used for test initiation on day 1 and for test solution renewal on day 2. The second sample would be used for test solution renewal on days 3 and 4. The third sample would be used for test solution renewal on days 5, 6, and 7. Each 24 hour composite shall be collected using a refrigerated automatic sampler. Each 24 hour composite sample shall consist of not less than 48 discrete aliquots of effluent. Aliquots shall be of equal volume and time-proportional unless effluent flow is expected to vary by more than 10% from one hour to another or by 50% over the 24 hour collection period (as predicted from historical trends, significant rainfall events, etc.). With anticipated effluent flow variation of greater than 10% per hour or 50% overall, the frequency, and volume of each aliquot shall be flow-proportional. The lapsed time from collection of the last aliquot of the composite and its first use for test initiation or for test solution renewal shall not exceed 36 hours.

PART V – BIOMONITORING - CHRONIC CONCERNS

TEST REQUIREMENTS

Composite samples shall be refrigerated and maintained at not greater than 6°C during collection, storage, transport and until used in the test by the laboratory.

If after at least six consecutive toxicity tests, it can be determined that Ceriodaphina dubia or the Fathead minnow is more sensitive and all tests have passed, a request for testing with only the most sensitive species can be submitted to the Division. Upon approval, that most sensitive species may be considered as representative and all subsequent compliance tests can be conducted using only that species unless directed at any time by the Division to change or revert to both.

REPORTING REQUIREMENTS

Results of all toxicity tests conducted with any species shall be reported according to the most recent format provided by the Division of Water. Notification of failed test shall be made to the Division's Water Quality Branch within five days of test completion. Test reports shall be submitted to the Division's Water Quality Branch within thirty days of completion.

Chronic Toxicity

If noncompliance with the toxicity limit occurs in an initial test, (i.e., the IC_{25} for reproduction of water fleas or growth of minnows is less than **100**% effluent), the permittee must repeat the test using a new set of three 24 hour composite samples. Sampling must be initiated within 15 days of completing the failed test. The second round of testing shall include both species unless approved for only the most sensitive species by the Division. Results of the second round of testing will be used to evaluate the possible need for a Toxicity Reduction Evaluation (TRE).

If the second round of testing also demonstrates noncompliance with the toxicity limit, the permittee will be required to perform accelerated testing as specified in the following paragraphs.

Complete four additional rounds of testing to evaluate the frequency and degree of toxicity within 60 days of completing the second round of failed testing. Results of the initial and second rounds of testing specified above, plus the four additional rounds of testing will be used in deciding if a TRE shall be required.

If results from any two of the six rounds of testing show a significant noncompliance with the chronic limit (i.e., $\geq$1.2 times the TU_c), or results from any four of the six tests show chronic toxicity (as defined in 1.A), a TRE will be required.

The permittee shall provide written notification to the Division of Water within five (5) days of completing accelerated testing stating that: (1) toxicity persisted and that a TRE will be initiated; or (2) that toxicity did not persist and the normal testing will resume.

Should toxicity prove not to be persistent during the accelerated testing period, but reoccur within 12 months of the initial failure at a level • 1.2 times the TU_c, then a TRE shall be required.

PART V – BIOMONITORING - CHRONIC CONCERNS

TOXICITY REDUCTION EVALUATION (TRE)

Having determined that a TRE is required, the permittee shall initiate &/or continue at least monthly testing with both species until such time as a specific TRE plan is approved by the Division. A TRE plan shall be developed by the permittee and submitted to the Division within thirty days of determining a TRE is required. The plan shall be developed in accordance with the most recent EPA and Division guidance. Questions regarding this process may be submitted to the Division's Water Quality Branch.

The TRE plan shall include Toxic Identification Evaluation (TIE) procedures, treatability studies, and evaluations of: chemical usage including changes in types, handling and suppliers; operational and process procedures; housekeeping and maintenance activities; and raw materials. The TRE plan will establish an implementation schedule to begin immediately upon approval by the Division, to have duration of at least six months, and not to exceed 24 months. The implementation schedule shall include quarterly progress reports being submitted to the Division's Water Quality Branch, due the last day of the month following each calendar quarter.

Upon completion of the TRE, the permittee shall submit a final report detailing the findings of the TRE and actions taken or to be taken to prevent the reoccurrence of toxicity. This final report shall include: the toxicant(s), if any are identified; treatment options; operational changes; and the proposed resolutions including an implementation schedule not to exceed 180 days.

Should the permittee determine the toxicant(s) and/or a workable treatment prior to the planned conclusion of the TRE, the permittee will notify the Division's Water Quality Branch within five days of making that determination and take appropriate actions to implement the solution within 180 days of that notification.

TEST METHODS

All test organisms, procedures and quality assurance criteria used shall be in accordance with Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms (Fourth Edition), EPA-821-R-02-013, the most recent edition of this publication, or as approved in advance by the Division of Water.

Toxicity testing for compliance to KPDES discharge limits shall be performed by a laboratory approved by the Division of Water to conduct the required toxicity tests. Within each toxicity report to the Division of Water, the permittee must demonstrate successful performance of reference toxicant testing by the laboratory that conducts their effluent toxicity tests. Within 30 days prior to initiating an effluent toxicity test, a reference toxicant test must be completed for the method used; alternatively, the reference toxicant test may be run concurrent with the effluent toxicity test. In addition, for each test method, at least 5 acceptable reference toxicant tests must be completed by the laboratory prior to performing the effluent toxicity test. A control chart including the most recent reference toxicant test endpoints for the effluent test method (minimum of 5, up to 20 if available) shall be part of the report.